2. On a New Bird from the Island of Madagascar. By Alfred Newton, M.A., F.L.S., F.Z.S.

(Plate XIII.)

My brother, Mr. Edward Newton, Assistant Colonial Secretary at Mauritius, and a Corresponding Member of this Society, having had last autumn the good fortune to make a second visit to Madagascar, has sent me a collection of birds from that island, containing many objects of great interest, among which is one that I believe forms a genus very distinct from any previously known. This I have now the honour to exhibit and describe.

Hypherpes*, genus novum *Certhianum* vel *Sittinum*.

Char. Gen.—*Rostrum breve, robustum, leviter emarginatum, ad apicem aliquanto compressum, rictu setoso. Alæ mediocres, rotundatæ, ad caudam mediam attingentes, remige quarto, quinto et sexto æqualibus; tertio septimum, et octavo secundum, superantibus; primo multo breviore. Cauda mediocris, prope æqualis, rectricibus duodecim aliquanto rigentibus. Pedes validissimi, tarsis quam digiti medii posticique longioribus, unguibus compressis, subvalidis.*

Hypherpes corallirostris, sp. nov. (Pl. XIII.)

Capite, gutture, pectore et abdomine schistaceo-brunneis, olivaceo indutis; collo, dorso, alis caudaque supra fusco-cæruleis, virente tinctis: remigibus fuscis, extus pallide marginatis, intus cervino latius limbatis, ut in Tichodroma: *uropygio et crisso subrufescentibus, rectricibus obsolete fasciatis: rostro toto coccineo; pedibus plumbeis: iridibus obscure rubris.*

Longitudo tota 4·8 poll. Angl. et dec.; rostri a fronte ·4, a rictu ·65; alæ 2·9; caudæ 2·2; tarsi 0·9; digiti medii cum ungue 0·8, postici 0·97.

March 24, 1863.

W. H. Flower, Esq., F.Z.S., in the Chair.

Mr. F. Buckland made some remarks on the progress of the experiments for hatching the ova of Trout and Salmon in the Society's Gardens.

Mr. Wallace made some remarks on a Hornbill living in the Society's Gardens, which he believed to be a discoloured specimen of *Buceros* (*Hydrocissa*) *pica*, a common Malaccan species.

* ὑπὸ, *sub*; ἕρπης ex ἕρπω, *repo*.

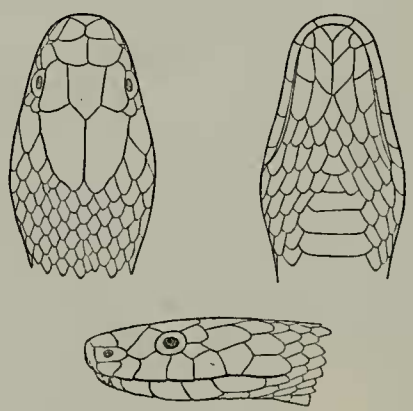
The following papers were read :—

1. Description of a New Species of Hoplocephalus with Keeled Scales. By Gerard Krefft, Corr. Memb.

Hoplocephalus carinatus, sp. nov.

Scales in 23 rows. Anal entire. Ventrals 165. Subcaudals 54.

Body elongate and rounded ; tail rather short, not distinct from the trunk, tapering, ending in a conical spine. Head broad, quadrangular, distinct from the neck ; muzzle short and broad ; eye moderate, pupil rounded ; rostral broad, just reaching the surface of crown, with a groove along the lower edge ; anterior frontals moderate ; posterior frontals much larger, five-sided, rounded behind. Vertical moderate, five-sided, with an acute angle behind ; superciliaries large, raised above the eye ; occipitals moderate ; one anterior ocular, slightly grooved ; two posterior ones ; one large temporal shield, two smaller ones behind ; no loreal, this being replaced by the nasal ; the second upper labial, anterior ocular, and posterior frontal bend down on the sides. Seven upper labials, the third and fourth touching the orbit.



Scales rather narrow and elongate, in twenty-three rows anteriorly, somewhat broader, and in nineteen rows posteriorly, strongly keeled, forming fourteen raised lines upon the back and sides; brownish olive above, with some irregular interrupted blackish rings, which become more and more obsolete towards the tail ; skin between and upon the underside of the scales black ; belly whitish, clouded with purplish grey on the sides, much darker towards the tail, which is of a uniform purplish colour below.

This *Hoplocephalus* differs from all the other known species in the strongly keeled scales and the seven upper labial shields. Total length 38″.

Discovered by Mr. James J. Wilcox near Grafton, in the Clarence River district.

2. On New and little-known Birds from China. By Robert Swinhoe, F.Z.S., etc.

Fam. Picidæ.

In the valley of Foochow I observed among the pine-trees a brown species of Woodpecker feeding off some insects attached to the resinous gum that exuded between the scales of the bark. It continued active in its pursuit, running round and up the trunk, occasionally halting a few seconds and uttering a hoarse shaking note, not unresembling a laugh. I shot the bird, and found its head, base of bill, and many parts of its body smeared with the gum among which it was feeding. A female, which I afterwards procured from the same locality, had the head quite disfigured by the dried mass of resin, which glued the feathers of its crown together. This fact, I learn from Jerdon's book on 'Indian Birds,' has been observed before by Mr. Blyth and others, in the species of Indian *Brachypternus*. The Foochow brown Woodpecker is also a *Brachypternus*, at once distinguishable from its Indian congeners, *Micropternus phaioceps*, Blyth, and *M. gularis*, Jerdon, and the small Malay species, *M. badius*, Horsf., by its much browner plumage, the under parts especially being of a deep dusky brown instead of chestnut, and by its long narrowed feathers with dark central lines on the crown and occiput. The Chinese bird, moreover, appears to be larger, the female being somewhat larger than the male. I propose to call this

Brachypternus fokiensis, sp. nov.

General colour brown, banded narrowly on the back with chestnut; quills and tail chestnut, banded broadly on the former and narrowly on the latter with brownish black; feathers of the head and neck narrowed and lengthened, in the male dusky yellowish grey, in the female light chestnut, with deep-brown central stripes, paler in the female. The masculine distinguishing mark is the patch of crimson specks (blood-tips to the feathers) that occur on the cheek just under the eye. Bill bluish grey, with more or less greenish yellow on the lower mandible; irides reddish brown; legs and claws greenish slaty.

♂. Length 8·5 inches; wing 5; tail 3·7; bill, at front, 1; tarse ·8.

♀. Length 9·5; wing 5·3; tail 3·7.

I have never received this bird from any part of China but Foochow, where it is not particularly common. I have drawn my name from the province of which Foochow is the capital. On *Micropternus phaioceps*, Blyth, M. Malherbe has founded two species—*Phaiopicus blythii* and *P. rufonotus*; but both Jerdon and Blyth consider these to be identical. The *Micropternus gularis*, Jerdon, is the *Phaiopicus jerdoni* of Malherbe.

While on the subject of the Woodpeckers, I should like to make a few remarks on the eastern races or so-called species of the *Picus major* group, namely, *Pici mandarinus, luciani, gouldii*, and *cabanisi*

of Malherbe's 'Monograph.' The form of this bird, found in the north-west Himalayas, and described by Jardine and Selby as *P. himalayanus*, and Hodgson's species, *P. majoroides*, from the south-west Himalayas, both appear to have the red breast-spot which, in the adult dress, adorns the breast of the Chinese bird. I will here add some remarks on our Chinese bird, made after a careful comparison of my series from China with the plates and descriptions in M. Malherbe's work.

PICUS MANDARINUS, Malherbe.—*P. major*, L., apud Von Schrenck and Middendorff.

M. Malherbe has described and figured four species of true *Picus* from China: of the exact locality of one of these only he speaks with confidence—his type of *P. mandarinus* from Whampoa in the Museum at Berlin. I have in my collection a specimen from Whampoa, three from Canton, three from Foochow, and one from Pekin. From Whampoa and Canton I have two skins which answer to the brown under-plumage of his *P. luciani*, but have broader and more black bands on the lateral rectrices. I have two from Canton answering to *P. mandarinus*, but with a less bright red spot on the breast. My three birds from Foochow correspond nearly to his *P. gouldi*, which I presume is from Shanghai, but are browner on the under parts, and also have indications of the red spot on the breast. My example from Pekin is of the bright under tints of *P. cabanisi*, with an equally bright red breast-spot; but has more white on the wings, and the almost white lateral rectrices of *P. luciani*. From a careful comparison of the skins of this variable Woodpecker in my possession, I have come to the conclusion that they are all certainly of one species; for if we were to go on such nice specific distinctions as those pointed out by M. Malherbe, every bird even out of a number from the same locality might be regarded as a distinct species. In one of my Canton birds the secret of the very brown under plumage is developed; it is a young male with the crown red. Hence I gather that the special brown plumage in this species is a mark of the young, the red pectoral spot showing itself and intensifying as the bird advances to maturity, while the under plumage at the same time whitens. The white on the wings and tail is always less in the young individual, and widens considerably with advancing age. No two specimens agree precisely in the size or distribution of the white on the wings or the bands on the tail. The further north the locality whence the birds are derived, the larger their sizes generally, and more conspicuous the white markings. My Foochow specimens are larger than those from Canton and Whampoa, and have more white on the wings and tail; while the bird from Pekin is as light on the under parts as *P. major*, though, being adult, it carries the characteristic bright red pectoral spot. At the same time, being from a northern locality, the white spots on its wings and the white bands on its tail are very largely developed, Had M. Malherbe known the exact localities of the individuals he describes from, and had he had a larger series of skins to examine,

I do not think he would have advanced such strong opinions as to the specific merits of the four species he has introduced into his excellent work.

Genus Alauda.

Alauda pekinensis, sp. nov. Pekin Skylark.

Smaller than *A. arvensis*, L., with longer wings; paler, without the olive wash; head much less crested.

Length 7·5; wing 4·7; tail 3·1; tarsi ·9.

My two specimens from Pekin I have compared with six specimens of the English bird shot about the same season. Both my examples are males, one mature, the other a bird of the year. My younger specimen is, as usual in Larks, most distinctly marked, the eyebrow, lore, throat, and nape being nearly white, the latter spotted. The mature bird is more rufescent on these parts, but is otherwise generally paler. The six English Larks vary a good deal as to particular marks and length of wing. They are all longer than my two birds, and yet the longest-winged of the lot does not quite attain the alar length of our birds. They all unite in having their dark parts of a much richer brown, and their whole plumage washed with olive-yellow, which is by no means apparent in the Pekin birds; while the latter have much less crest.

Alauda cœlivox, Swinhoe. South-China Lark.

Of much richer plumage than the North-China Lark, much smaller, with more developed crest.

Hab. Formosa, and from Canton to Foochow.

Length 6·5; wing 3·6; tail 2·4; tarsi ·9.

Alauda intermedia, sp. nov. Shanghai Lark.

Capt. Blakiston has brought from Shanghai two Larks, which occupy a position so entirely between *A. pekinensis* and *A. cœlivox*, that it is impossible to refer them to either. They constitute an intermediate race, which might by analogy be expected to occur on the boundaries that divide the northern race from that of the south; and certainly, geographically speaking, the Yangtsze River may be considered the dividing-line of the northern area of China from the southern. This bird may perhaps be regarded as a hybrid form between the two species, which in this locality may be supposed to meet. I could not discover any striking differences in the song of the Shanghai bird from that of *A. cœlivox*, nor yet from that of the Pekin Lark. But in size and general appearance the three appear certainly distinct.

The Shanghai species may be characterized as intermediate to *A. pekinensis* and *A. cœlivox*, with proportionately longer wings than either, and less crest than the latter. Its first primary quill is more nearly of a length with the second than in the Pekin Lark.

Length 6·8; wing 4·2; tail 2·8; tarsi ·9.

Genus Anthus.

Neither Von Schrenck nor Middendorff notice a Rock-Pipit from Siberia or the Amoor; nor has one yet been noted from Japan. I have never traced the form in any part of China. We are, however, indebted to Capt. Blakiston for the capture of a specimen of this group, allied to *A. obscurus*, L., on the banks of the Yangtsze River, 150 miles inland. This skin closely tallies with one in Mr. Gould's collection from Ireland; but ours has a whiter face and cheek, and the pectoral spots, which blend away obscurely in the Irish skin, are in ours distinct and well marked. On the specific merits of the various forms of Rock-Pipit procured in different parts of Great Britain and Europe I will leave European naturalists to dispute. For the present, until the acquisition of a larger number of specimens shall prove the Chinese bird identical with the varying forms of the West, I propose to consider ours as distinct, under a specific designation taken from the name of its discoverer. It may, however, be only a well-marked race, to which the British forms may be found occasionally to assimilate; or it is just possible that the specimen procured in Ireland may be one of the several Eastern birds that in some unaccountable way has found its way to the shores of Great Britain.

Anthus blakistoni, sp. nov.

Bill blackish brown on culmen and tip, light brown on remainder; legs blackish brown, paler on tarsi; upper parts light yellowish brown, grey on the nape; crown and back with centres of feathers deep brown; lore, eyebrow, and chin cream-white; under parts cream-white, spotted on the breast and streaked on the flanks with brown; axillaries pure white; wings brown, feathers edged paler; coverts and tertiaries broadly edged and tipped with cream-white, forming a double bar across the wing; tail brown, the central feathers yellowish brown, edged paler; the outer lateral tail-feather, on the entire outer web, and great part of inner near the apex, white; second lateral edged exteriorly and largely tipped with white.

Length 5; wing 3·7; tail 2·7; tarsi ·85.

Anthus gustavi, n. sp.

This species, which visits the island of Amoy for a few days, about the middle of May, may I think be regarded as a summer visitant to the south of China. Mr. Blyth has examined a specimen, and assures me that it differs from all the Indian species he is acquainted with; and I can find nothing in Europe approaching it. It is more nearly allied to some Australian forms. It is about the size of *A. pratensis*, L. I have named it after Gustavus Schlegel (son of Dr. Schlegel of Leyden), who was the first to procure the bird at Amoy.

Length 6; wing 3·1 to 3·4; tail 2·3; tarsi ·88; bill, along front, ·5.

Bill and feet strong, approaching *Corydalla*, the former with a slight upward curve; throat, axillaries, and centre of belly pure white; upper parts yellowish brown, with a rich chestnut-tinge, the

centres of the feathers carrying very broad stripes of brownish black. In the majority of skins, the feathers of the back are broadly edged with yellowish white; breast and flanks with chestnut-ochre, spotted on the former and streaked on the latter with brownish black; the spots run in single line up either side of the lower neck close to the bill; eye-streak, lore, cheeks, and under neck ochreous; central tail-feathers blackish brown, edged with olive-chestnut; the outer lateral being nearly white, with a darker outer web; the second lateral has only a broad longitudinal pale streak along the inner web; wings blackish brown, edged with olive-brown, the coverts and some of the tertiaries being broadly edged and tipped with cream-white, forming a double bar across the wing; under wing for the most part whitish, with a slight rust-tinge. Bill, upper mandible, and tip of lower deep brown; edge of upper and basal two-thirds of lower pale flesh-colour; inside of mouth pale yellowish; eye-rim blackish brown; iris deep hazel; ear oval, aperture occupying the half furthest from bill; legs and claws brownish flesh-colour. Some specimens are more strongly washed with rusty ochreous, especially on the under wing and under tail-coverts. Some have more olive on the upper parts than others. They vary also in size and intensity of the blackish markings, as also in the pale yellow edgings to the dorsal feathers; but none depart from the well-marked general characters. This Chinese bird may perhaps be considered one of the most striking and handsome species of the difficult and already well-stocked genus *Anthus*.

Salicariæ.

Calamoherpe fumigata, n. sp.

This migratory species, which passes Amoy in May to the interior of China, I obtained in sufficient abundance in 1861. I place it in this genus, as both in size and form it is more nearly allied to our *C. orientalis*, Schleg., and the *C. turdoides* of Europe than to any others of the *Salicariæ* that I am acquainted with. Its hind toe is much shorter than that of *C. orientalis*, and its hind claw smaller; its tail is much more graduated, each feather ending in a long projecting tip. Perhaps no birds puzzle the classifier so much as do the different species of Reed-birds. Almost each species may be regarded as occupying a section of its own. I do not of course in this include races of the same form from different localities, which have been ranked as species, as, for instance, the *Calamoherpe turdoides*, and its eastern representative, the *C. orientalis*. It is just as well for the facility of determination that such birds should be separated, and this cannot well be done without the trinomial nomenclature, unless subgenera are formed for their specific reception. As naturalists are so averse to admit the double specific name (one of the species, and the other of the locality whence any bird is derived, which shows a sufficient variation to entitle it to be noted, though scarcely strong enough to permit of its being styled a separate species), we must continue forming subgenera,—though, in

my opinion, with regard to the Reed-birds, and to several other groups, double specific names might almost be allowed. We will not now, however, attempt to propose a new subgenus for the reception of this new species; but only point out that, in the character of its tail, this bird is not a typical *Calamoherpe*, if we regard *C. turdoides* as the type.

♂. Length 7·5; wing 3·3; tail 2·7; bill, along culmen, ·7; tarsi 1·1; hind toe and claw 7·5.

♀. Length 7·2; wing 3·1; tail 2·7.

The five lateral rectrices much graduated, all strongly mucronate; first primary quill broad, pointed, and short; the second about one-twelfth shorter than third, which is the longest in the wing.

Bill deep brown on upper mandible and apical half of lower, pale on the edges of both; basal half of lower ochreous, becoming brighter yellow on the rictus, base, and basal edge of upper; inside of mouth bright yellow; legs and claws deep flesh-brown; upper plumage dusky chestnut-brown, tinged with olive, ruddier on the back, wings, and tail; a whitish streak runs over the eyes; throat, centre of breast, and belly white; cheeks and lower neck smoke-grey; sides of breast, axillæ, flanks, and vent brownish buff; irides chestnut-brown.

A younger bird had the bill deep greyish brown on culmen, bluish grey on gonys, with the rest of the bill pale flesh-colour, yellowish at base and rictus; inside of mouth pale yellow; legs and claws light yellowish or flesh-brown; the under parts have less smoke-grey and buff, and the upper parts are lighter.

All the specimens have several thread-like filaments proceeding from the ends of the occipital feathers. This peculiarity is more observable in the *Drymoicæ* and *Priniæ* than perhaps in any other group of Warblers. I have of this species eight specimens, all procured at Amoy in May 1861.

CALAMODYTA SORGHOPHILA, n. sp.

This Sedge-Warbler, of which I procured only one specimen at Amoy in May 1861, is smaller than the Continental *C. aquatica*, and more nearly resembles the British *C. phragmitis*, L., from which it differs in the form of its wing, and almost in the unspotted appearance of its upper parts. Upper mandible of bill blackish brown, edge of upper and whole of lower yellow-ochre; rictus and inside of mouth yellow; irides ochreous brown; legs and toes plumbeous, with paler soles; upper parts ochreous olive, with a few rather faint streaks of blackish brown; eyebrow and cheeks ochreous, more buff-coloured on the lores; over the eyebrow a black streak marks each side of the head; under parts yellowish buff, much paler on the throat, under neck, and centre of belly; wing-coverts and tertiaries deep hair-brown, margined with ochreous olive; quills hair-brown, edged with light chestnut-brown; tail pale hair-brown, margined with reddish olive, which colour also tinges the rump; inner edges of the under wing edged with very pale rusty ochre.

Length 4·6; wing 2·23; tail 1·88; tarsi ·7; bill, along culmen, ·42.

First quill very small, narrow, and pointed, about ·34 long; second quill ·28 shorter than the third and fourth, which are equal and longest; the fifth quill ·15 shorter than the third and fourth; the sixth ·22 shorter than the fifth. Tail much graduated, the *rectrices* being narrowed at their tips; tarsi thick; toes and claws strong, the hind toe and claw especially so.

Locustella macropus, n. sp.

The Grasshopper-Larks, when procured, are the easiest of all the Reed-birds to distinguish. For if there is any doubt from their external appearance, one has only to examine the tibial tendons. In all three species procured at Amoy, these have proved quite rigid, like those of gallinaceous birds. Mr. Blyth tells me this holds good in the *L. rubescens* of India, and I expect it will be found also so in the European species. It was first brought to my attention by an intelligent Chinese bird-stuffer I used to employ, who was rather astonished to find them so hard as to blunt his scissors. I have, curiously enough, three good species of *Locustella* from Amoy. One, a male of a very richly coloured species, was procured in our garden on the 2nd September, and is evidently a winter visitant to South China. This turns out, as I had expected, to be *L. ochotensis* (Midd. Siber. Reise), from the Amoor and North Japan (Capt. Blakiston). The other two are both summer birds with us, being generally found about in May. The first of these, shot 31st May, 1861, at Amoy, approaches nearer to *L. raii*, but can at once be distinguished by its much larger feet.

Length 5·1; wing 2·3; tail 2; bill, along culmen, ·41; tarsi ·68.

Bill blackish brown on upper mandible; edge of upper and greater part of lower pale flesh-colour; gonys, near tip, brownish and darker flesh-coloured; rictus and inside of mouth pale yellow; legs, toes, and claws very pale yellowish flesh-colour.

First quill minute; second quill rather shorter than third, which is longest. Tail soft and graduated. Our single specimen has only a very few faint spots on the breast, with none on the flanks and under tail-coverts. In point of colouring it is very similar to some phases of the dress of the European *Locustella*, of which it is in fact the Eastern representative.

Locustella minuta, n. sp.

This again is allied in colouring to the *L. raii*, but is a very diminutive species, strongly marked and spotted; it may perhaps turn out to be a resident species in South China. I have one, shot at Amoy on 18th May, 1861; and Capt. Blakiston procured a pair in Canton in October. The Canton birds are strongly washed with yellow, and are therefore, I presume, birds of the year.

Length 4·7; wing 2·15; tail 1·6, the feathers much graduated; tarsi ·65; bill, along culmen, ·38, to gape ·6.

Bill blackish brown on the culmen and the small apical part of

the gonys; the rest of it and inside of mouth pale yellowish flesh-colour; legs and toes large and thick; claws thin and pointed, hind claw long and Pipit-like, all of a deep brownish flesh-colour, with paler edges and soles.

First quill diminutive; second one-twelfth shorter than third, which is longest. Colouring similar to *L. raii*, and perhaps as variable, according to the stage of its plumage.

I have a few other novelties, perhaps more interesting than the above, from China, but I have not now leisure to add them to this list; I must therefore reserve them for a future paper.

3. Notice of the Chanco or Golden Wolf (Canis chanco) from Chinese Tartary. By Dr. J. E. Gray, F.R.S., F.L.S., F.Z.S., etc.

Lady Augustus Hervey has kindly presented to the British Museum a fine specimen of the skin of a Wolf, which was shot by her brother, Lieut. W. P. Hodnell, of H.M.'s 54th Regiment, with several other animals, such as the large *Ovis ammon*, in Chinese Tartary.

It is a very showy animal, rather larger than the common European Wolf.

I do not find it noticed either in Pallas's 'Zoographia Rosso-Asiatica,' published at St. Petersburg in 1831, or in Dr. Leopold v. Schrenck's 'Reisen und Forschungen im Amur-Lande in den Jahren 1851–56,' published at St. Petersburg in 1858, unless they regard it as a variety of the Common Wolf (*C. lupus*).

The Russians in Eastern Siberia call a Fox (*Canis alpinus*) (figured by Schrenck, t. 2) the *krasnoi Wolk*, that is, Tawny Wolf.

Canis chanco.

Fur fulvous, on the back longer, rigid, with intermixed black and grey hairs; the throat, chest, belly, and inside of the legs pure white; head pale grey-brown; forehead grizzled with short black and grey hairs.

Hab. Chinese Tartary. Called *Chanco*.

The skull is very like, and has the same teeth as, the European Wolf (*C. lupus*). The animal is very like a Common Wolf, but rather shorter on the legs; and the ears, the sides of the body, and outside of the limbs are covered with short pale fulvous hairs.

The length of its head and body is 42 inches; tail 15 inches.

4. Notice of a New Species of Chameleon sent from Khartoom by Mr. Consul Petherick. By Dr. J. E. Gray, F.R.S., F.L.S., F.Z.S., etc.

This species is very like *Chamæleo senegalensis*; but the scales on the ridges of the head and the ridges of the back are of the same size as those of the neighbouring parts, and therefore do not form

any appreciable crest. The occiput is rather differently shaped, the hinder central keel being a little more prominent. The scales of the head, body, limbs, and tail are smaller and less raised. The limbs are longer and more slender.

This species is very different from the *Chamæleo affinis* of Rüppell, (which is the *C. abyssinicus* of the Berlin Museum), from Abyssinia, which differs from both *C. senegalensis* and *C. lævigatus* in the scales being much larger and more convex, and in the scales of the ridges of the head and back being larger than those on the neighbouring parts, so as to form distinct crests; and in *C. affinis* the body is grey or blackish, with two or three broad, irregular-shaped, opake-white spots, forming an interrupted streak on each side of the back of the animal.

This species may be thus described :—

Chameleo lævigatus.

Grey or bluish in spirits. Scales small, flat, subequal, uniform; dorsal line, nearly smooth, scarcely crested. Belly with a crest of larger acute white scales. Occiput slightly raised in the centre by a slight keel; the superciliary ridges and the central keel scarcely dentated. The legs elongate, very slender.

Hab. Khartoom.

5. Notes on Two New Species of Mammals. By J. K. Lord, F.Z.S., Naturalist to the British North-American Boundary Commission.

My principal reason for bringing to your notice this evening two animals, a Musk Rat and a *Lagomys*, that I propose making new species, is to elicit from the zoologists who are before me opinions on that most debatable of all debatable questions, Where does well-marked variety end, and species begin? Is it enough if you have decided differences of habit, size, colour, and locality—variations that are always constant, but without well-defined *structural* differences, or these, if any, but trivial in character; or must there of necessity be decidedly marked variations in *structure*, particularly in the skull and dental formulæ, as well as in habit, colour, size, and habitat, to constitute a species? I now have on the table four animals, two of which are described and figured, and two I believe specifically distinct from the former; and although the latter, as I shall be able to point out to you, present differences of habit most singularly well marked, strongly defined differences of size and colour, habitat, and range, yet an examination of their skulls shows only some slight differences, principally in size.

First, then, of the Musk Rat. The one which I believe is the well-known *Fiber zibethicus* (Cuv.) makes its holes in the clayey banks of streams and pools where the water runs slowly. The entrance is always below the surface of the water; the hole is dug up in a slanting direction till above the water-level. A stage or flat place is

then cleared, which constitutes his dining-, drawing-, and bed-rooms; leading to the entrance of his mansion are a large number of open cuttings, running in all directions, cut or dug in the mud at the bottom of the water. When foraging about, as he usually does about twilight, if alarmed, he dives at once into one of these cuttings, and, rushing rapidly through it, stirs up the mud, and so fouling the water, completely and effectually conceals himself.

The other Musk Rat, which I propose to make a new species, and to call *Fiber osoyoosensis*, having obtained it at a large lake (Lake Osoyoos), situated between the Cascades and Rocky Mountains, and through which the boundary-line (the 49th parallel of latitude) runs, differs in size, in colour, in locality, but particularly in habits, from the preceding.

This fellow chooses as his haunt a clear pond or lake, and in water from 3 to 4 feet deep constructs a house of bullrushes, in form conical, built up from the bottom—how, I am at a loss to imagine,—the roof cleverly arched over into a domed shape, and raised about a foot above the water. Up in this dome, skilfully constructed, is his suite of apartments, the entrance to which is far below the surface of the water. His habits very nearly approximate those of the Beaver: he swims about boldly in the day-time, but dives rapidly on the approach of danger. If a dead or badly wounded duck be left on the pool, it is at once seized on, towed into the house, and devoured.

I am quite satisfied, from careful observation, that the Musk Rat is a carnivorous beast whenever he has a chance; and the straight, sharp-cutting, strong incisor teeth are well adapted for the indulgence of such cannibal propensities.

If there were no rushes growing where the mud-rover lived, it might be assumed that he dug a hole into the bank from lack of material to build a house; but I have often seen the rushes growing abundantly where he has chosen his mud hut, offering every facility for architectural pursuits, had he so willed. On the other hand, had the rush-builder been precluded from finding a mud-bank in which to construct his mansion, it might have been supposed that he had resorted to making a hut with rushes on that account.

This *Lagomys*, which I propose making a new species, and calling, from its being so much less than any other, *Lagomys minimus*, lives on the summit of the Cascade Mountains, at an altitude above the sea-level of about 7000 feet. He chooses as his residence loose piles of rocks and stones. He is shy and wary, and on the slightest noise takes a header into a crevice. When everything is again still and quiet, he cautiously peeps out, and, growing bold in the silence, climbs up on the top of a stone, and, sitting on his hind legs like a begging dog, gives a sharp shrill cry; and so curiously deceptive is it that I constantly imagined the sound was far distant when it has been close to my feet. It was in October, when I was on Ptarmigan Hill, a high mountain in the Cascade range; the snow was just beginning to fall; and all these little fellows were then busily employed in making large nests, in the crevices between the stones, of dry grass and leaves,

evidently for their winter sleep, and perhaps store-house. I should have made much more extensive observations, had not the prospect of coming snow driven me down.

This *Lagomys*, which is much larger, and which I believe to be the same as the one described and figured by Sir J. Richardson (pl. 19) as *Lepus* (*Lagomys*) *princeps*, I first saw at Chilukweyuk Lake, a large lake on the west side of the Cascades, close to the boundary-line, and next on the trail leading from Fort Hope on the Fraser River to Fort Colville on the Columbia, both fur-stations of the Hudson Bay Company. The animals were in a narrow gorge, among large heaps of loose stones that had rolled down from the high precipitous sides of the gorge. I saw them busily feeding on grass, much after the fashion of a rabbit, eating a few mouthfuls, then stopping and sitting up and quietly taking a survey of things in general. At this period, later in the year, about the same date on which in the year preceding I had seen *Lagomys minimus* making its nest, not a trace of a nest could I see, nor any evidence of an attempt to make one. It was at the same period of the year, and about the same altitude, that I saw this *Lagomys* at Chilukweyuk Lake; but no nest, nor a shadow of an attempt to construct one, was there to be seen. Early in October I returned again by the trail I had used in going from Fort Colville to Fort Hope; the snow had fallen to about the depth of 6 inches, completely covering up the rocks and stones. All the little fellows had disappeared, and, although I searched most carefully, there was not a hole nor track in the snow to show they had ever left their quarters. It was quite impossible a nest could have been made in the interim; hence I feel perfectly sure they hybernate in deep holes without a nest, whereas *Lagomys minimus*, living at a much greater altitude, makes a large nest of hay to pass his winter sleep in.

The two new animals may be described as follows:—

Fiber osoyoosensis, Lord, sp. nov.

Sp. char.—In total length $3\frac{1}{4}$ inches shorter than *Fiber zibethicus* (Cuv.); in general size much smaller. General hue of back jet-black; but, the hair being of two kinds, if viewed from tail to head it looks grey—the under fur being fine, silky, and light grey in colour; concealing this on the upper surface are long coarse black hairs; the belly and sides somewhat lighter; head broad and depressed; neck indistinct; ear small, upper margin rounded; eye small and black; the feet, legs, and claws are so exactly like those of *Fiber zibethicus* that it would be useless to describe them again; whiskers long, and composed of about an equal number of white and black hairs; incisors nearly straight, on the external surface orange-yellow.

The skull differs from *Fiber zibethicus* in being much smaller, $2\frac{1}{8}$ inches in length, $1\frac{1}{6}$ inch in width, very much shorter from the anterior molar to incisors; nasal bones much more rounded at their posterior ends, the superior outline less curved; postorbital process not nearly so much developed; the cranial portion of the skull in its upper outline is much less concave, and smoother; superior out-

line of occipital bone not so prominent or strong; incisors shorter and much straighter; molars much smaller, but in general outline similar.

LAGOMYS MINIMUS, Lord, sp. nov.

Sp. char.—Differs from *Lepus* (*Lagomys*) *princeps* of Sir J. Richardson (F. B. A., i. p. 227, pl. 19) in being much smaller. Predominant colour of back dark grey, tinged faintly with umber-yellow, more vivid about the shoulders, but gradually shading off on the sides and belly to dirty white; feet white, washed over with yellowish brown; ears large, black inside, the outer rounded margin edged with white; eye very small and intensely black; whiskers long, and composed of about an equal number of white and black hairs.

Measurement: Head and body $6\frac{1}{2}$ inches; head 2 inches; nose to auditory opening $1\frac{1}{4}$ inch; height of ear from behind 1 inch.

The skull differs in being generally smaller; the cranial portion of the skull in its superior outline is much narrower and smoother. The nasal bones are shorter and broader, and rounded at their posterior articulation, instead of being deeply notched as in *L. princeps*. Distance from anterior molar to incisors much less; auditory bullæ much smaller. Incisors shorter and straighter, and very deeply grooved on the anterior surface. Molars smaller, but otherwise similar in form. Length of skull $1\frac{1}{4}$ inch.

General differences from *Lagomys princeps*—*First*, in being smaller, $1\frac{1}{2}$ inch shorter in total length; the ear, measured from behind, $\frac{1}{4}$ inch shorter: the colour generally darker, especially the lower third of the back.

Secondly, in the *structural* differences of the skull; for although these differences are not prominent or well defined, yet they are unquestionable variations.

Thirdly, in the habit of constructing a nest of hay for the winter sleep, and in living at a much greater altitude.

6. On the American Spine-tailed Swifts of the Genus Chætura. By P. L. Sclater, M.A., Ph.D., F.R.S., Secretary to the Society.

(Plate XIV.)

Through the kindness of Professor Baird, of the Smithsonian Institution, Washington, I have lately received for examination a specimen of *Chætura vauxi*—the Western Spine-tailed Swift of North America. I have long wished to see an authentic example of this Swift, in order that I might compare it with Mexican skins in my collection which I had referred, not without considerable misgivings, to this species. Upon comparison I find that the skin transmitted by Professor Baird, which was obtained by Dr. C. B. Kennerly when engaged on the North-Western Boundary Survey at Simiahmoo, in July 1852, agrees closely with mine, and I have no doubt of its being of the same species. The range of this bird, therefore, appears

M & N Hanhart, imp.

1. CHÆTURA CINEREIVENTRIS
2. —— CASSINII.

to extend from British Columbia through Mexico into Guatemala, where examples were obtained by Mr. O. Salvin.

I take this opportunity of giving a short synopsis of the American species of the genus *Chætura* *, which may be distinguished in the following way :—

Div. A. HEMIPROCNE. Majores (long. corp. maj. quam 6 poll.).

Major; torque postico, angusto, albo ..... 1. *semicollaris.*
Minor; torque undique, latiore, albo ..... 2. *zonaris.*

Div. B. CHÆTURA. Minores (long. corp. min. qu. 6 poll.).

Torque rubro ..... 3. *rutila.*
Torque nullo { dorso æneo-nigro, uropygio vix pallidiore ..... 4. *pelasgia.*
uropygio fuliginoso { gutture albo : pect. obscuriore 5. *vauxi.*
gutt. et pect. fuliginosis ..... 6. *poliura.*
uropygio cinereo ..... 7. *cinereiventris.*
uropygio albo ..... 8. *spinicauda.*

The synonymy of the species stands nearly as follows :—

A. HEMIPROCNE.

1. CHÆTURA SEMICOLLARIS.

Acanthylis semicollaris, De Saussure, Rev. Zool. 1859, p. 118.
Chætura semicollaris, Sclater, Cat. Am. B. p. 282.

Nigra ; semitorque postico angusto, albo.
Long. tota 10, alæ 10, caudæ 3, poll. Angl.
Hab. Mexico.
Mus. P. L. S.

This fine Swift is easily distinguishable from *C. zonaris* by its larger size, and the entire absence of any traces of a white collar below. M. de Saussure has not vouchsafed to inform us in what part of Mexico he procured it. My specimen was obtained by exchange from the Geneva Museum.

2. CHÆTURA ZONARIS.

Hirundo zonaris, Shaw, in Mill. Cim. Phys. pl. 55.
Hirundo albicollis, Vieill. Nouv. Dict. xiv. p. 524, et Gal. Ois. pl. 120.
Acanthylis albicollis, Sclater, P. Z. S. 1854, p. 10, et 1858, p. 59.
Cypselus collaris, Max. Beitr. iii. p. 344 ; Temm. Pl. Col. 195.
Hemiprocne collaris, Nitzsch, Pterylogr. p. 123.
Pallene collaris, Boie, Isis, 1844, p. 168.
Hemiprocne zonaris, Sclat. et Salv. Ibis, 1860, p. 37 ; Cab. et Heine, Mus. Hein. iii. p. 84.
Acanthylis collaris, Gray, List Spec. Fiss. p. 15 ; Bp. Consp. p. 64 ; Burm. Syst. Ueb. ii. p. 364.
Chætura zonaris, Sclater, P. Z. S. 1861, p. 79, et Cat. Am. B. p. 282.

Fusco-nigra ; torque undique, lato, albo.
Long. tota 9·0, alæ 9·0, caudæ 2·5.

* I think it doubtful whether Temminck's *Cypselus senex* (Pl. Col. 397) is to be referred to this genus or not. Bonaparte says "*rectricibus minimè mucronatis, sed rigidis*" (Consp. p. 65). I have no example of this species.—P. L. S.

Hab. South America, from the La Plata northwards, and through Central America to Guatemala; Jamaica (*Osburn*); St. Domingo (*Sallé*).

Mus. Brit., P. L. S., &c.

B. Chætura.

3. Chætura rutila.

Hirundo rutila, Vieill. Nouv. Dict. xiv. p. 528, et Enc. Méth. p. 534.

Acanthylis rutila, Sclater, P. Z. S. 1855, p. 135.

Chætura rutila, Sclat. et Salv. Ibis, 1860, p. 37, pl. 3. f. 1 (♂), 2 (♀); Sclat. Cat. Am. B. p. 283.

Hirundo robini, Less. Tr. d'Orn. i. p. 270.

Chætura brunneitorques, Lafr. Rev. Zool. 1844, p. 81; Bp. Consp. p. 64.

Nigricanti-fuliginosa, subtus dilutior; torque maris undique, rubro, fœminæ nullo.

Long. tota 4·5, alæ 5·0, caudæ 2·0.

Hab. Guatemala (*Salvin*).

Mus. P. L. S.

Said to have been procured by M. Robin in Trinidad, and by Lafresnaye described as from New Granada, but more certainly from Guatemala, where Mr. Salvin obtained his specimens personally.

4. Chætura pelasgia.

Hirundo pelasgia, Linn. S. N. i. p. 345; Wils. Am. Orn. v. p. 48, pl. 39. f. 1.

Chætura pelasgia, Steph. Gen. Zool. Birds, xiii. p. 76; Baird, B. N. Am. p. 144; Sclat. Cat. Am. B. p. 282.

Acanthylis pelasgia, Bp. Consp. p. 64; Cass. Ill. B. Cal. i. p. 241.

Hemiprocne pelasgia, Streubel, Isis, 1848, p. 363.

Fuliginosa; gutture pallidiore; supra æneo tincta, uropygio paulo dilutiore.

Long. tota 4·7, alæ 5·0, caudæ 1·8.

Hab. Eastern United States of North America.

5. Chætura vauxii.

Cypselus vauxii, Towns. Journ. Acad. Philad. viii. p. 148.

Acanthylis vauxii, Bp. Compt. Rend. xxxviii. p. 660, Notes Delattre, p. 90, et Consp. p. 64; Cass. Ill. B. Cal. i. p. 250.

Chætura vauxii, Baird, B. N. Am. p. 145; Sclat. Cat. Am. B. p. 282.

Chætura ——?, Sclat. et Salv. Ibis, 1860, p. 37.

Fuliginosa; dorso et capite æneo tinctis; uropygio pallidiore; subtus gutture albo, ventre obscure fuliginoso, gulam versus sensim dilutiore.

Long. tota 4·3, alæ 4·7, caudæ 1·5.

Hab. Western North America, from British Columbia south through Mexico to Guatemala.

Mus. P. L. S.